



THE Macdonald Farm Journal

VOLUME 14 No. 6

FEBRUARY 1954

F A R M . S C H O O L . H O M E





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The Land And The People

It's time we stopped talking about the inexhaustible resources this Canada of ours possesses, for if we ever really get down to thinking about the problem we would be surprised to find out that these resources are not quite so inexhaustible as many of us seem to think.

Take agriculture, for example. Out of the more than two billion acres which comprises Canada only two hundred and forty-one million acres at the most are suitable for agricultural purposes — slightly more than ten percent. Not very much is it?

If we wish to continue enjoying our high standard of living indefinitely we shall have, sooner or later, to keep our population within bounds. We can, of course, still increase our population substantially, but there are limits — our resources are not inexhaustible.

Again, however, we are faced with other problems; our land is not naturally fertile; our yields are low compared with some European and Eastern countries; being a large exporter of agricultural produce we ship much of our fertility overseas with these exports.

Our climate is a two-pronged weapon. It slows down the rate of erosion, for our land is frozen for anywhere from five to seven months of the year and this is all to the good, but the other side of the picture isn't so rosy, the very fact that we have so temperate a climate means that those factors which help in improving our soils and forming new ones are slowed down. This is a situation which could well work to our disadvantage, firstly the loss of fertility due to agricultural exports, secondly the slow replacement of our soils due to a temperate climate.

A pretty bleak picture indeed, but it doesn't need to be if we use what we have to the best of our ability. It's little use our looking at this stage of our population growth to our potential farming land for much of it is too far removed from centers of population to be of any practical use now. What

we must do, therefore, is to improve the land we already have under cultivation.

To do this we need a vigorous, healthy livestock population; we need the manure for our land; we need plenty of artificial fertilizers; we need green manure crops, (all these things help to build better soil); to increase the productivity of our land; to increase the yield and carrying capacity per acre.

Building up the humus content of our soil helps reduce run-off; holds the moisture from summer rains and winter snows in the ground releasing it slowly when needed. That our farming practices are not always as good as they might be is all too clearly illustrated during a summer drought when far too many of our wells and streams run dry and we have to transport water for our stock. In these days of farm labor shortages we can't afford to waste time carrying water for the stock. In these days of rising costs and lowering prices we are losing money every time we cut down the water intake of our livestock which is what we usually do when we have to carry water — we give them a minimum.

Whether we are shipping fluid milk, selling to a creamery, cheese factory or condensery, or raising beef, pork or eggs our stock needs all the water they can drink for maximum production; our land needs moisture to produce heavier crops and high protein grass feeds.

Let us learn now to conserve and we need have no fear of the future.

Our Cover Picture

Our sugaring scene is probably a little ahead of time, but the season should be in full swing before our next issue comes out. And speaking of sugaring, do you know that some 11,500 farmers have exchanged their old-fashioned sap pails for 15 million aluminium ones? The two governments have been helping by paying two-thirds the cost of the new pails since 1941. All told, there are 22 million aluminium pails in use in Quebec.

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Canadian Agriculture Not Unlimited

by P. O. Ripley

Canada is looked upon as an agricultural country, but there are limits to our increases in this direction. It would do us a lot of good to take stock as this article suggests.

THIS country not only looks large, it is large. It comprises 2,364,904,960 acres. But only 4 per cent or 91,000,000 acres have been improved and used for agriculture. An additional 50 million acres has not been improved but is used for rangeland with a fair potential production. Another 50 to 100 million acres may be cleared and broken for agricultural production. The remaining 2 billion or more acres is composed of lakes, rivers, the rocky outcrop of the pre-Cambrian shield, the Rocky mountains and the northern Tundra. None of this is agricultural land. Little or none of this is suitable for food production. Over 80 per cent of this huge country is unavailable for the production of food and clothing except for some furs and artificial cloth from wood products.

Yields are Relatively Low

On the small area of land that is available for agriculture, the yields of some of the standard crops are not as high as in many other countries. The International Institute of Agriculture calculated the average yields of wheat, oats, barley and potatoes in various countries as shown in Table 1.

AVERAGE YIELDS IN VARIOUS COUNTRIES

Bushels per Acre — 1928-32

COUNTRY	Wheat	Barley	Oats	Potatoes
Belgium	33.5	44.0	57.0	290
Denmark	55.6	47.9	42.9	219
United Kingdom	29.1	34.0	33.3	224
Japan	23.5	34.5	30.5	124
Egypt	24.3	27.9	—	—
Canada	14.3	19.4	25.6	121
United States	12.8	19.8	25.2	100
China	14.7	19.4	20.0	83
U.S.S.R.	8.8	13.5	19.1	104

The yields in Canada are extremely low as compared with Belgium, Denmark, the United Kingdom, Japan and



Our bountiful farms supply feed and to spare for the livestock during the long winter months they are in the barns.



Canada is an agricultural country. Giant machines cutting and threshing on the Prairies.

Egypt. They are on a par with the relatively low yields obtained in United States, China and Russia. It is sometimes concluded that virgin soil is fertile, highly productive soil. This is not always true. In Canada the large area of prairie soil built up under grass vegetation is fertile. The larger area of land developed under forest and especially evergreen forest is often very infertile, highly acid and of rather low productivity. Added to this is the rather unfavorable climate, which tends to slow up chemical and biological activity, thus retarding the normal formation of soils, and impeding the processes which produce optimum conditions for plant growth.

The initial productivity of Canadian soils is low. In spite of great scientific investigations and developments the methods employed over half a century have failed to produce much, if any, improvement in these yields. Disease resistant varieties have been produced. Pesticides have been developed to control weeds, insects, and virus diseases. Much fertilizer has been added to the soil and good tillage methods practised. In spite of all this the yield per acre of crops was no higher in 1950 than in 1900. Perhaps this is not such an outstanding agricultural country after all. Agricultural exports are high but production per unit area is low compared with some other countries. What are some of the reasons for this?

We Export Soil Fertility

The balance of trade in this country is favorable. It is sound economy to export. Exporting agricultural products, however, does reduce fertility. In 1948 for instance, a few selected agricultural commodities were exported to the extent shown in Table 2.

EXPORTS FROM CANADA 1948

Wheat	135,640,729 bushels
Oats	25,345,036 bushels
Barley	18,911,388 bushels
Seed Potatoes	5,343,936 bushels
Tobacco	15,877,694 pounds
Cattle	411,291 head
Pork Products	2,047,307 cwt.
Wool	13,669,300 pounds

It has been calculated that the exports listed in Table 3 carried with them the equivalent of 134,687 tons of nitrogen, 72,699 tons of phosphorus and 15,025 tons of potash. In that same year in Canada, only one-fifth of that amount of nitrogen, 27,846 tons, was returned as commercial fertilizer. Slightly more phosphorus, 89,537 tons was returned and potash was returned to the amount of 50,070.

We Don't Use Much Fertilizer

Although this is an exporting country, the return of plant nutrients in commercial fertilizer is much lower per unit area than in many other countries, some of which are high importing nations. Table 3 shows the comparative usage of fertilizers of some of these countries.

PRE-WAR APPLICATION OF FERTILIZER INGREDIENTS BY VARIOUS COUNTRIES

	Pounds per acre		
	N	P ₂ O ₅	K ₂ O
World average.....	2.8	4.5	2.9
Netherlands.....	56.5	91.7	89.2
Belgium and Luxembourg.....	39.5	62.5	48.0
Germany.....	26.3	26.0	43.7
Denmark.....	13.6	22.5	10.8
United Kingdom.....	8.7	31.1	13.0
France.....	6.7	15.3	11.3
U.S.A.....	2.1	4.4	2.3
Canada.....	.5	1.2	.9
U.S.S.R.....	.5	1.5	.6

Compared with the Netherlands, one of the highest users of commercial fertilizers, Canada is very low. The Netherlands, a country of excellent farmers and high yields, uses 113 times more nitrogen per acre, 76 times more phosphorus and 99 times more potash. Perhaps this is one of the reasons yields in Canada are not higher.

Washing the Soil Away

Another reason for low yields may be inadequate methods of controlling erosion. Considerable advance has been made in the control of wind erosion in Western Canada, but erosion still continues to some extent. Little or no attempt has been made to control water erosion. Fortunately a cold climate prevents erosion for 6 to 7 months per year. In mixed farming areas a large proportion of sod crops also controls this situation. But in areas



Wool for warmth and lamb for the table. Canadian agriculture can supply these products in abundance.

where cash crops are grown, and the soil is left for certain periods, exposed to the eroding effects of heavy rainstorms of short duration, dangerous erosion may occur. In an experiment at Ottawa such conditions allowed for soil loss by erosion, where corn was grown continuously, on a 10 per cent slope, amounting to 172 tons per acre in a six year period. At this rate the complete six inches of surface soil could be removed in 35 years. The loss could be accelerated, since 78 tons of the 172 was lost in one year 1946.

The removal of this surface soil takes with it the most fertile part of the soil. This is illustrated by another experiment where barley grown on normal uneroded soil produced an average of 33.2 bushels per acre in a 7 year period. On an adjoining plot with all of the surface soil removed, the yield was only 4 bushels per acre.

Sod crops not only prevent erosion, but help improve the soil also. They tend to add fibre to the soil, although, they may be harvested. This is partly because of their extensive root system. An average crop of potatoes for instance only leaves about 321 pounds of root residues in the soil. Corn leaves approximately 1,100 pounds. A timothy sod on the other hand left 3,673 pounds of root residues in an experiment conducted at Ottawa. An old alfalfa sod showed 5,108 pounds of roots in the soil.

It is good practice to rotate sod crops with other crops in the rotation. It has been shown experimentally that potatoes, for instance, after timothy produced 262 bushels

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per acre. After corn on an adjoining plot the yield was only 227 bushels. Oats after alfalfa yielded 62 bushels per acre, but after potatoes only 50 bushels. Mangels after alfalfa yielded 33.1 tons per acre. After oats the yield was only 24.7 tons per acre.

Our Production is Low

It may be seen that although Canada is a favored nation, its production is not unlimited and is comparatively low. The population is small and a great increase could soon use up the surplus food. Less than twenty per cent of the total land area is suitable for agriculture. Climatic conditions are not particularly favorable for maximum production. In a hungry world, it behooves this nation to utilize every method within its power; to increase production to a maximum without abusing its resources; to share its surplus with other less fortunate lands; and to plan with other people for a balanced economy and a



program of population and food control, which will prevent a world calamity.

Grass Is A Triple Threat

Grass can be ensiled, cut for hay, or pastured. Hardly anything else a farmer grows can boast of this. It means that the grass farmer can adjust his farm-management practices to meet seasonal conditions, even after the crop has been planted, and this is a big advantage.

* * *

If soft snow is swept off hedges and evergreens, sweep upwards, not downward on the branches. If the plants are covered with sleet or frozen snow, wait until the ice thaws, most efforts to move ice from hedge plants do more harm than good.

* * *

Baby teeth are the foundation of the permanent teeth and should receive great care in order that the second set may grow in healthily.

All Aboard For The Sugar Bush . . .

MANY Canadians have nostalgic memories of carefree days as children in the sugar bush, and of brisk sunny days which made the sap run well. There are still lots of volunteers among today's "younger generation" for this farm chore. Here they are ready to collect the sap from the buckets on the trees into the gathering tank. Later the sap will be boiled down under intense heat until it becomes syrup. About 35 gallons of sap is needed for each gallon of syrup.

Confined almost entirely to Ontario and Quebec, last year's maple sugar crop was a good one valued at over \$12 million dollars. The average is \$9 million.

Tapping sometimes starts as early as February 20, in Ontario, but elsewhere the first half of March is the busy time lasting from three to five weeks depending on the weather conditions.

About 85 percent of Canada's maple syrup comes from Quebec and 14 percent from Ontario. United States customers have a sweet tooth for maple products and around 40 percent of Canada's output is marketed there.

Here in Quebec the Provincial authorities take great pains to make sure that all syrup and sugar sold is up to standard. Any syrup which is sold for industrial use



must be graded by an officer of the Department of Agriculture. Syrup sold for consumption as such is graded by the seller, either the producer himself, the jobber or the retailer, according to rigid specifications laid down by the Department.

Syrup is graded into five categories: Canada choice AA, Canada light A, Canada medium B, Canada amber C and Canada dark D. The different grades are determined by the density of the syrup and its colour, according to charts and colour standards supplied by the Department of Agriculture.

Newcastle Disease

by Chas. A. Mitchell

Newcastle disease is a relative newcomer to Canada, but it can wipe out a healthy flock of birds in short order.

NEWCASTLE DISEASE has been in existence for many years, but it was not until 1926 that it was recognized as a separate disease, when an outbreak near Newcastle, England was investigated. Now it is known to exist in many different countries of Europe and Asia. In 1942 a condition was discovered in California which because of the symptoms became known by the jaw cracking name of avian pneumoencephalitis. At a later date it was discovered that this infection was in reality a mild form of Newcastle disease. From California the disease spread over the United States and finally made its appearance in Canada in 1948. Only in British Columbia, however, has it reached epidemic proportions; this was in 1950.

Age has a definite bearing on the symptoms presented and the number of birds which die. In young chicks respiratory symptoms such as sneezing, coughing and gasping for breath are usually noticed. Those that survive for a while show a greenish tinged watery diarrhoea which has a characteristic odor. There is a twisting of the head over the back or under the body or from side to side. The chicks stagger and walk in circles. They rapidly become paralysed in one or both legs. Some chicks show no

symptoms but die suddenly. The death rate varies from twenty to one hundred percent.

In more mature birds and especially in laying flocks there is often a sudden onset of coughing, sneezing and gasping for breath which lasts from seven to ten days. A watery fetid diarrhoea becomes evident and egg production drops rapidly. The eggs which are laid are odd-shaped, soft shelled or even without shells. Feed and water consumption decline and the birds show every evidence of depression. The death rate is usually low, but varies in accordance with the seriousness of the epidemic. Egg production may be resumed in from one to two weeks, but it usually takes from four to six weeks to reach normal.

A precise diagnosis of Newcastle disease can only be made in the laboratory. This is done by the isolation of the virus from appropriate tissues. It is quite necessary to carry out this procedure so that the true nature of the infection is determined, because it may be confused easily with infectious bronchitis, laryngotracheitis, chronic respiratory disease or even some nutritional deficiencies. In the case of recovered birds their previous infection can be demonstrated by serological means which determines the presence of specific immune antibodies in the circulating blood.

Watch The Spread

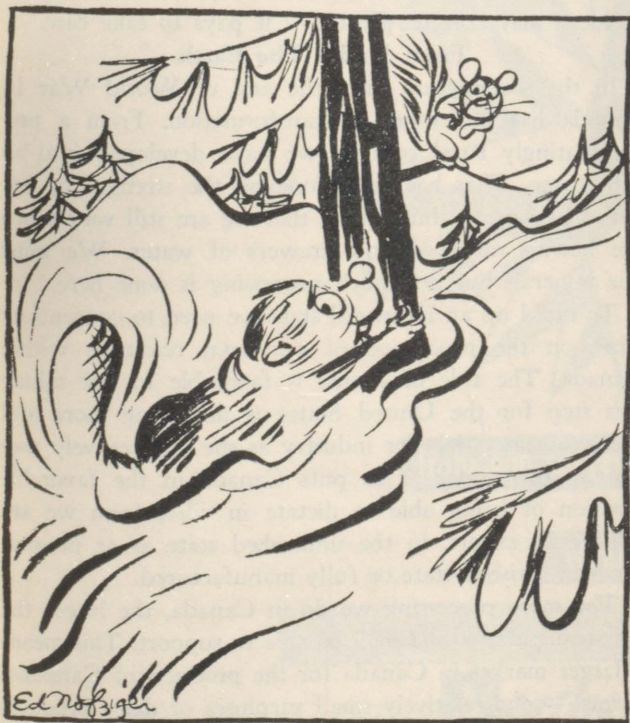
The virus of Newcastle disease is hardy and can be spread from infected to susceptible individuals by either direct or indirect means. It is well to remember, however, that the virus is most infectious through the respiratory tract. Consequently any means for distributing virus that might be inhaled is the most efficient method of spread. Fine down and very small feathers have a capacity for transferring the disease because it rides on this material which in turn may be inhaled by susceptible birds. Because of this it may spread considerable distances providing the wind currents are favorable, while in addition it may spread within infected houses with considerable ease.

The usual way in which the virus is introduced into a flock, however, is by contaminated material brought in by visitors, poultry dealers, crates, feed bags and things of that sort. Infected baby chicks are also a very frequent means of introducing the disease onto the premises. In fact, to some extent at least, the distribution of infection over many areas is dependent upon the baby chick industry. Obviously once the infection is established it will spread from bird to bird. Emphasis must be placed on the infected baby chick which because of its distribution is capable of spreading the virus over great distances. This would emphasize again the main reason for keeping the baby chick sources free of infection.

Flying birds, rats and other creatures have also been blamed as sources of infection.

"JOE BEAVER"

By Ed Nofziger



Forest Service, U. S. Department of Agriculture

"I'm helping the forest service ranger start an avalanche while there are no skiers on the hill to get hurt."

Prevent The Disease

Once the infection is introduced there is no suitable treatment for infected individuals, therefore, stress must be placed on prevention.

The flock owner must maintain a strict control of his premises at all times and cut down human traffic and other sources of indirect contact to a minimum. If a disease is known to exist in a flock elsewhere he should not visit the affected flock but avoid it as he would a human plague. If Newcastle disease is found on the premises it should be reported immediately to the nearest veterinary inspector who will take official action.

There are several types of vaccine which are of value. Vaccine in the form of a spray may be given to baby chicks and this will induce a resistance which will last

for several weeks. Older birds may be vaccinated by one of several methods, all of which give a measure of protection. Unfortunately the most efficient vaccines are not completely killed and under certain conditions are capable of inducing the disease. On the other hand the so-called killed vaccines give only temporary resistance which under practical conditions are insufficient to meet the needs of poultry farmers. Experience seems to indicate that when vaccines which contain some live particles are used they should be given before the birds enter production.

There is evidence accumulating which seems to indicate that certain blood lines are more susceptible to the disease than others, it may be that perhaps a degree of resistance can be established in birds by a genetical approach to the problem.

Farm Forum News And Views



This is the type of group we like to see, it's large and represents all age groups, it's the Vinton Farm Forum in Pontiac County.

Comment On The March Broadcasts Safety On The Farm

OUR knowledge of schools tax rates is much too vague to offer any suggestions on the subject, however, the March 8th, broadcast on Safety On The Farm is a topic we do know something about.

Too many of us take chances with our machinery, though may be we are not as bad as the young fellow in the picture who, let's hope, has his life insurance paid up. In most case we feel that it is a case of familiarity breeds contempt, we are so used to working with certain implements that we forget they are dangerous if mis-handled, that a slip may mean the loss of anything from a finger to our very life.

How can we make farm work safer? By always being

Read This And Look Your Best

Folks, whenever Keith Russell comes around your way have him take a picture of your Forum group because we can use it in the Journal. We will print all the pictures of Forum groups we get. We can't say that they will go in right away because of space considerations, but we'll certainly use any picture as soon as we can. Better tell Keith to deliver the print in person.

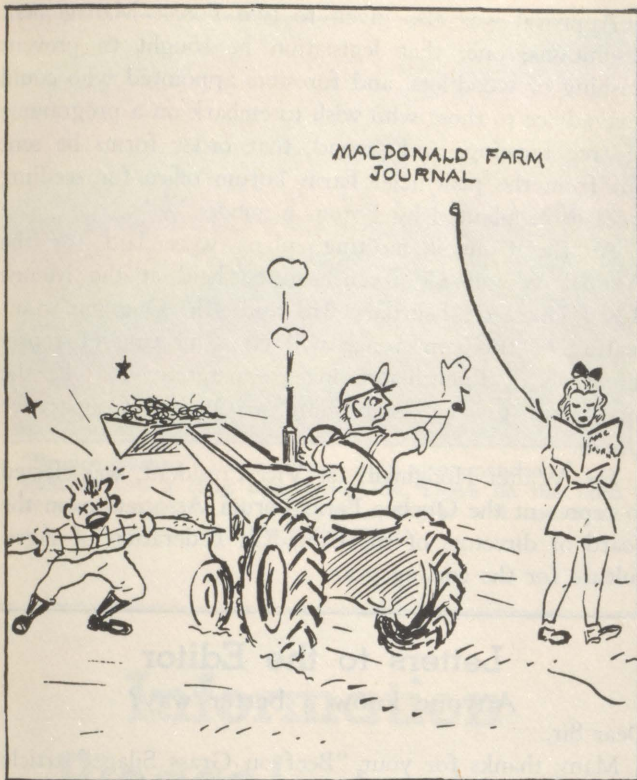
on guard against what might happen; by never tinkering with a machine when it is running; by seeing that the safety shields are in place; by replacing worn chains and belts; by keeping belts under the correct tension. An accident may cost us plenty — it pays to take care.

From Under The Earth

In the seven years since the end of World War II, Canada has undergone a transformation. From a predominantly rural country we have developed into an urban one. This has been done on the strength of our natural resources, but for all that we are still very much the hewers of wood and drawers of water. We mine our minerals but not much processing is done here.

To build up an industrial state we need to concentrate more on the processing of our own resources within Canada. The tide of events is favorable to our taking this step for the United States is importing more and more raw materials for industry as she progressively uses up her own stock. This puts Canada in the favorable position of being able to dictate in what form we are willing to export, in the unfinished state as at present, the semi-finished state or fully manufactured.

The more processing we do in Canada, the larger the urban population we shall be able to support. This means a larger market in Canada for the products of Canadian farms — our relatively small surpluses of dairy products and pork would rapidly disappear. This would put the



ONE JOB AT A TIME!

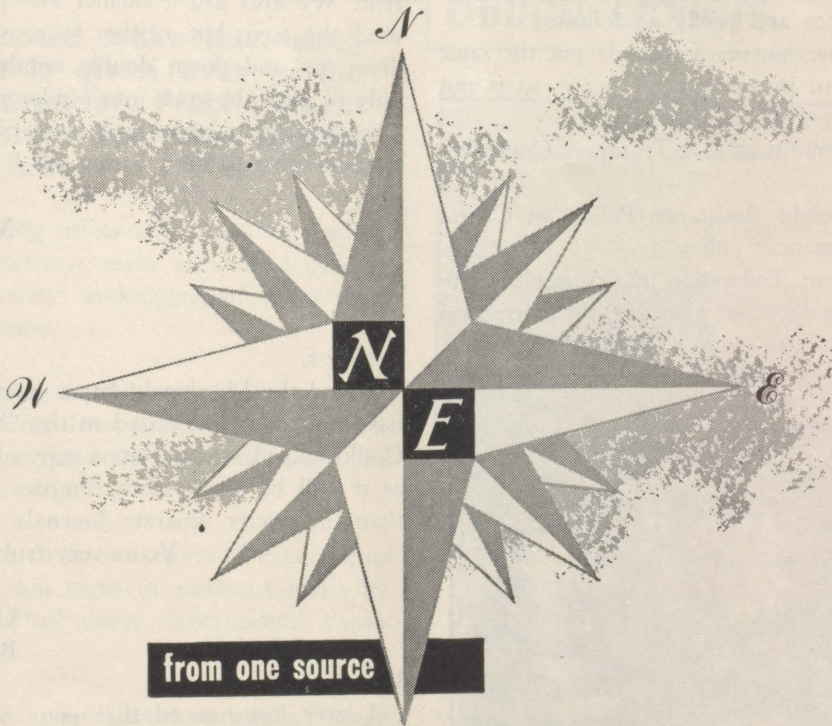
farmer in a more advantageous position for he would have a market close at hand which would be free from the fluctuations of world trade.

Let's not only give the March 15 broadcast a lot of thought but let's also make our wishes felt by contacting our local federal M.P.

Farm Forum News

Mrs. Gilbert Telford, Shawville, Quebec, has been elected Lady Director of the Eastern Agricultural Conference, to represent the E.A.C. in this capacity on the Board of Directors of the Canadian Federation of Agriculture. Mrs. Telford, who has represented the Quebec Farm Forum Association on the Board of Directors of the C.F.A. for the past two years, now enters another two-year directorship.

The Eastern Agricultural Conference, made up of the Maritime Federation of Agriculture, the Prince Edward Island Federation of Agriculture, the Ontario Federation of Agriculture, La Coopérative Fédérée de Québec, L'Union Catholique des Cultivateurs de Québec, and the Quebec Farm Forum Association, met in Toronto on January 18th to consolidate its policies before the annual meeting of the Canadian Federation of Agriculture in London on January 25-27.



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A typical thriving Farm Forum which meets every Monday night, the Dunraven Forum in Pontiac County.

Executive Meeting Report

The Quebec Farm Forum Council met on Saturday, January 16th 1954, to consider resolutions from county associations and provincial committees, and to clear up business which has arisen since its last meeting.

Resolutions which will go forward to the Eastern Agricultural Conference are briefly as follows:

Asking that the Government of Canada put the same emphasis on food as an instrument for peace, as is put on armaments as instruments for war.

Asking that the appointment of a Transport Controller be made permanent.

Asking that the Freight Assistance Policy on Coarse Grains be made a permanent policy.

Asking the Canadian Federation of Agriculture to name a committee to devise a plan for the correction of inadequacies in our farm credit facilities.



Farm Forum Councils have a lot of hard work to do, and this one, the Pontiac Forum Council does a first rate job.

Approval was also given to two Forest Management resolutions; one, that legislation be sought to prevent slashing of wood-lots, and foresters appointed who could give advice to those who wish to embark on a programme of tree farming; and second, that order forms be sent out from the provincial Farm Forum office for seedling trees to be planted by Forum members.

At the Council meeting, plans were laid for the Annual Winter Conference to be held at the Mount Royal Hotel on February 3rd and 4th. One important feature of this conference will be a meeting of representatives of English-speaking co-operatives to take the final steps toward establishing a Quebec Cooperative Union.

Mr. Walter Hodgman, 1st Vice-President, was elected to represent the Quebec Farm Forum Association on the board of directors of the Canadian Federation of Agriculture for the coming year.

Letters to the Editor

Anyone know a better way?

Dear Sir,

Many thanks for your "Beef on Grass Silage" article in the December issue. This winter's forage was put into a trench silo with a buck rake which is attached at the rear. We also had a smaller sweep at the front, so we used the two, but neither were very satisfactory. We drove up and down double windrows but seemed able only to push the grass into a pile on the end of the tines. Then began the laborious task of placing it. If you know someone able to do a better job I should be glad to see him.

Very truly yours,
Ernest Brophy,
West Shefford, P.Q.
Mansonville, Que.

Dear Sir,

I read the Macdonald Farm Journal every month, and have been very interested in the "Shepherd's Calendar". Could you please send me a copy of the monthly outlines as it will be much more compact to keep in this form than the twelve separate Journals.

Yours very truly,

Ralph F. Knowlton.
University of Vermont,
Burlington, Vermont.

Dear Sir,

I have just noticed that your column entitled, "The Shepherd's Calendar", will not be published any more. In this note I should like to say that I enjoyed the outlines and the cartoons and found them highly informative.

Yours truly,

W. B. Durrell,
Associate Professor,
Dept. of Animal Pathology.



"Bronco busting" on a tractor isn't recommended if you want to live a long and useful life. Drive on the farm as you would on the highway and you will cut down on the accident rate.

Information Please! ★ ★ ★

This section should make interesting reading, for it is given over to the problems of our readers. Problems sent in by Farm Forum and other groups are dealt with here.

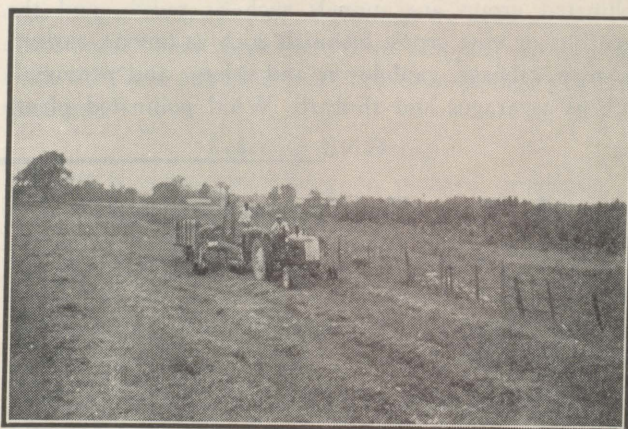
IN these days of falling prices and increasing costs it is essential that all farmers make their land produce to the limit of its capacity, in keeping, of course with good conservation practices.

We have had several inquiries of late concerning the fertilization of pastures. Does it pay off? Most of the people were interested in the dollar and cents angle and well they might be.

So here is the answer. It is the results of experiments conducted on different soil types in eastern Canada by the Division of Field Husbandry, Experimental Farms Service.

In the Ottawa district, superphosphate applied every three years at 600 pounds per acre over a 15-year period increased the average yield of dry forage from 2,101 pounds on the untreated plot to 3,886 pounds per acre on North Gower clay loam soil. For each dollar invested in fertilizer there has been an average return of \$6.50. On four other soil types complete fertilizer was the most effective during a 5-year period. This treatment increased the yield on Carp clay loam from 1,867 pounds to 4,220 pounds, on Grenville loam from 1,796 pounds to 4,376 pounds, on the poorly drained Rubicon sand from

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If you want a good crop you've got to put back as well as take out.

2,175 pounds to 3,315 pounds, and on Farmington, a shallow, droughty soil from 1,209 pounds to 2,058 pounds. At the Branch Farms in Quebec and the Maritime Provinces increases of similar magnitude have been obtained.

Hay and pasture crops in the rotation, employing the more productive species, remove large quantities of nutrients from the soil. Consequently, it must be replaced by the use of manure or commercial fertilizer. In a rotation it may be advisable to apply half of the manure to the hoed crop or at the time of seeding down, and the remainder in the fall of the year as top dressing to the pasture. Commercial fertilizer may be applied in the intervening years to maintain a high level of production.

Need For Commercial Seed Growing In The Maritimes

LARGE quantities of garden vegetable seeds are imported annually into the Maritimes. Though the cost of this seed may be relatively small to the individual grower, collectively it represents a considerable amount. Some of these seeds may be grown better and more economically in other places, but there are many which could well be grown in the Maritimes, says E. W. Chipman, Vegetable Specialist at the Experimental Station, Kentville, N.S.

The cultural requirements of the vegetable plants for seed production are much the same as for the successful growing of the crop for fresh consumption. It must, however, be remembered that to produce seed the plant makes heavy demands upon plant food and moisture.

In seed growing one of the first points to consider is whether the crop is self-pollinated or cross-pollinated. If self-pollinated, the varieties may be grown close together for seed with little danger of crossing. In this class fall such vegetables as beans, peas, lettuce and tomatoes. In the cross-pollinated group the varieties and closely related species should be segregated, the amount necessary depends on the crop and whether the pollination is carried out by insects or wind. Within the insect pollinated group are annuals such as radish, and the cucurbits or vine crops; biennials such as onions, carrots, parsnips, cabbage, cauliflower and celery; and perennials such as asparagus and rhubarb. Wind pollinated plants

include annuals, corn, spinach and biennial beets. Cabbage, cauliflower, brussel sprouts and broccoli readily cross with each other if they happen to be in blossom at the same time. Muskmelons do not cross with cucumbers or other cucurbits. Pumpkins and those squashes belonging to the same species cross readily. Carrots will cross with wild carrot.

Harvesting and cleaning of the seed is another important aspect of the business. Separate methods for the different crops must be carried out.

Only those vegetables which are particularly adapted to our climate should be considered. Disease may also be a limiting factor, as for instance, the seed borne disease anthracnose which makes bean seed production difficult in the Maritimes.

Until a working knowledge of seed growing is acquired it is best that the prospective grower begin on a small scale and develop gradually. It is to his advantage to begin with the crops which are easily handled, especially such annual crops as tomatoes, peas and the cucurbits. Also, he should try to avoid too many varieties.

For the Maritimes the following group of vegetables appear at the present time to be the most suitable for commercial production of seed; rutabagas, cabbage and peas. The cucurbits, turnips, radish, lettuce, cauliflower, tomatoes and spinach may also have limited possibilities.

A Plan For Your Garden

In laying out the vegetable garden, plan it so that the tall plants, such as corn, staked tomatoes, and pole beans will be at the north side where they will not cast shade on smaller plants.

To allow for cultivation, place asparagus, rhubarb, and other perennial vegetables on the edge of the garden, about three feet from the grass line. Plant the vine crops in the centre of the garden, and the other crops on each side with two rows of early vegetables along the edges of the vine crops. These will be out of the way when the vine crops spread.

The square or nearly square garden is usually easier to handle than a long narrow one, if worked by hand. If a garden tractor is used, however, more headland space will have to be sacrificed and more turning is required. If possible, rotate the different plantings so that crops will not be on the same ground year after year, particularly cabbages and turnips, if club-root is to be kept in check. Onions and vine crops may be continued on the same soil year after year.

This and many other hints for the gardener, including a table on the best varieties to grow, the amount of seed or the number of plants required for garden rows of 50 feet and the probable returns obtainable, are contained in "The Gardener's Handbook" available on request from Information Service, Box 237, Macdonald College.

Copper Sulphate Controls Foot Rot

A 10 to 30 per cent solution of copper sulphate used as a foot bath can help control foot rot in dairy cattle, according to tests made at the department of veterinary clinical medicine, University of Illinois.

Four-fifths of a pound of the chemical in one gallon of water will make a 10 per cent solution. A 30 per cent solution is obtained by dissolving two and one-half pounds of copper sulphate in a gallon of water.

The chemical will go into solution much easier if hot water is poured over the powdered crystals.



DEPARTMENT OF AGRICULTURE

*Activities, Plans and Policies of the Quebec
Department of Agriculture*

Pomological Society Is 60 Years Old

HUNDREDS of Quebec apple growers converged on Montreal last month for the 60th winter meeting of the Pomological Society. Snow-blocked roads did not deter them; if the main roads were snowed-in, they found alternate routes or transferred to trains, but they came in numbers to fill the Spanish Room at the Queen's Hotel and although every inch of space was filled with tables and chairs for the annual banquet, many had to be turned away to look for their meal elsewhere.

The scheme of holding both joint and separate meetings for the two language groups seems to work well. At the business meetings, attended by everybody, nobody seems to mind the extra time taken to make all the reports in both French and English. For the technical meetings French and English delegates meet in separate rooms, but the same papers are given at each meeting, the only difference being that of language.

With a record of sixty years of continuous activity, the Quebec Pomological Society can claim to be the oldest such group in the Province, if not in the whole country, and vice-president H. E. Palmer took advantage of the fact to recall something of the early days of apple growing in Quebec and to trace some of the developments since the first meeting was organized in Abbotsford in 1894, with particular reference to the past thirty years. He pointed out that between 1923 and 1928 the average apple crop in Quebec was about 400,000 bushels, and contrasted this with the 2½ million bushels average crop between 1948 and 1953. Not all this great increase is due to increased plantings; better varieties, improved methods of growing and pruning trees, better protection with improved insecticides and fungicides, have all contributed to the result. Also, the varieties grown have been cut down to about 10, from something like 50 in the early days. The one-time standby, the Fameuse, which in 1925 accounted for half the total crop, now runs from 18% to 20% and is falling still, while MacIntosh contribute about 65% of today's crop. Varieties susceptible to fireblight have been pretty well eliminated, and the chief problem now, as all growers well know, is the scab on Macs.

There is little to worry about on the score of possible over-production. Many of the old producing centres, such as Chateauguay, St. Hilaire, St. Bruno, are losing some of their importance as apple producers, due to the boom in new housing which is taking over the

orchards. Consumption of apples in Quebec is about 3 million bushels a year and Quebec growers produce only about 65% of this. Mr. Palmer estimates that, with the present varieties, we could reach about 80% of this figure, but to go any higher will require either the introduction of varieties with a longer storage life, or changes in storage practices which will permit longer storage life.

He also noted the changes in marketing methods which have come about, especially in the past few years. Whereas in the olden days apples were shipped away by boat or train, everything now moves by truck, usually to a cold storage plant, with the greatest possible speed. As late as 1948 there were no cold storage plants in the producing areas; now there are 7 co-operative storages with a capacity of 850,000 bushels, and privately-owned plants bring the capacity up to over a million bushels. This lengthening of the selling season has made it possible to supply Quebec apples, in good condition, all through the winter, and has discouraged other provinces from shipping to Quebec markets. There are 10% more apples in storage this year than last.

Learning By Doing

There is always something on orchard protection at these meetings, but this year a new twist was tried. Instead of having talks on spraying by technicians, the executive invited growers who had harvested clean crops to



Retiring president Duchesne was presented with several valuable gifts as a mark of appreciation for thirty years of service to apple growing in Quebec.

explain their spray programme to their fellow members. Gordon Thomson from Abbotsford and M. Lanctot from Frelighsburg both described their methods of protecting their trees, and answered questions from the floor.

Theo Proulx reported on a meeting he had attended at Rochester recently, where problems of the New York apple growers had been discussed. Their troubles, and solutions, are very similar to ours; their insects are gaining in resistance to DDT and to parathion, and they think that some of their magnesium deficiency troubles stem from a growing concentration of sulphur in the soil, residues from sulphur-containing sprays which make the soil magnesium unavailable. Like us, they favour the sod-mulch system.

Membership and Fees

The matter of membership has been plaguing the Society for some time. The membership is a long way from including all the apple growers in the Province, and the executive feels that they would be in a much stronger bargaining position when they approach the Provincial Government or the Canadian Horticultural Council, if they were speaking for more growers. As to fees, some feel they are too high and that is a reason why more people do not join the Society; others feel they should be raised to provide more money for the Society, particularly since the Provincial Government matches the fees dollar for dollar. At last year's meeting a notice of motion was presented calling for a uniform fee of \$10, no matter what size orchard the member operated, to replace the present \$5 and \$10 basis. This was voted on with a majority favouring the standard fee; but it is likely that this question will be up for discussion again at a future meeting.

Selling

Marketing experts are convinced that the polyethylene bag is the most effective consumer package yet devised; in the larger centres, especially in self-service stores, the 3, 5 or 6 pound bag sells most apples, especially when the display of bagged apples is set up alongside a display of bulk fruit. Market research carried on in the United States by agricultural economists of Cornell University, as described by Dr. Max Brunk, seems to have proved this point conclusively.

Those two experts from Ottawa, Don Blair and Hinson Hill, were on hand again to pass their suggestions on to the growers. Don Blair dealt with the question of chemical thinning, which he claims should be much more widely practised than it is, especially since it is a splendid means of breaking the alternate year bearing habit. He mentioned a number of preparations, including some that are not yet on the market, and also dealt with new and promising materials to control pre-harvest drop.

Dr. Hill reported that the 9-5-7 formula is still to be recommended for orchard fertilization, and emphasized that the application of nitrogen through sprays can't



It was one of the best attended winter meetings in years. take place of soil application, though it is useful in emergencies.

Bill Tawse, long associated with fruit and vegetable growing in Canada, reported, from his vantage point of merchandising expert for the Steinberg chain, that as soon as the MacIntosh are off the market, apple sales drop by half. In the west end of Montreal, the 3-pound bag has been found to be the most popular pack; outside the city, shoppers prefer the 5-pound bag; and the transparent bags seem to have increased sales by something like 65%. Retail sales of apples in Montreal are increasing, with MacIntosh being the favourite, and in demand right up to June. And, he says, with controlled-atmosphere (gas) storage, Macs can be kept in good condition until then.

Marketing of oranges is undergoing a change, he pointed out, with the swing being to the frozen juice. One carload of frozen cans is the equivalent of 30 cars of bulk fruit, when the juice is packed at its present 3-to-1 concentration. He expects that in the near future a 5-to-1 concentrated juice will be on the market.

Resolutions and Elections

The Resolutions Committee is concerned over the possibility that Federal technicians may be compelled to curtail their field work among the growers, and a resolution was adopted urging that Science Service personnel be allowed to continue with this valuable assistance to the industry. The perennial request for stricter application of the grading laws was approved, and so was the suggestion that the 3-pound and 5-pound transparent bag, without metal closing devices, be adopted as the standard consumer package. It was also decided to continue with the publicity campaign, to which all growers are supposed to contribute at the rate of 1 cent per bushel.

Floyd Stevenson was named honorary president, and J. E. Duchesne becomes past president. Vice-president Palmer found he was unable to step up into the presidency, on account of other duties, and Gerry Beaudin of Franklin Centre was elected in his stead, with Marc Hudon

vice-president. Jacques Berthiaume will continue as secretary. Directors include Brother Fernand, Leo Lussier, Nap. Morin, C. Auclair, A. Whitney, G. Baillargeon, H. Laberge, P. H. Philion and L. P. Roy. Directors at large are G. Bourdon, R. Thomson, G. Normandeau, B. Lanctot, and Col. Morrissey. Marc Hudon was named representative to the Canadian Horticultural Council, with Roswell Thomson and Gerry Beaudin as alternates. G. Bourdon and Roswell Thomson are the Provincial Spray Committee.

If You Are Selling Seed

Every spring, according to Adrien Auger of the Field Crops Service, farmers write to the Department of Agriculture offering to sell forage crop seed they have grown. He points out that the Department does not buy or sell seed, and any grower who has any to dispose of should contact his co-operative, or the regular seed merchants.

Don't put it off until it is almost time to start planting; and don't fail to mention how much you have to dispose of and whether or not it has been graded. To have your seed graded, send a 2-pound sample (if it is grain) or a quarter-pound sample if it is forage crop seed, to the Plant Products Division, 1254 Bishop St., Montreal. A grading charge of \$1 for forage crop seed and 75¢ for grain seed is made for each sample analysed and classified by the laboratory.

Maple Products Are Big Business

With the sugaring season almost upon us, this is a good time to take a look at what maple sugar and syrup has meant to those 5000 farmers who are members of the Quebec Maple Sugar Producers Co-operative, whose annual meeting was held in Levis last month.

The 1953 crop handled by members of the co-operative sold for a whopping \$2,737,843.53, and the price paid by the co-operative to its members was anywhere from 27³/₄¢ to 31³/₄¢ per pound, depending on the quality of the syrup delivered to the many receiving centres maintained throughout the province by the co-operative.

A considerable amount of money was spent during the year making improvements to the processing plant at Plessisville, buying new equipment and trucks, etc., and 1953 proved the most prosperous year in the history of the co-operative.

George Lamontagne of Coleraine is the president of the co-operative and the Hon. Cyrille Vaillancourt is the general manager. Other members of the board are J. A. Nadeau, J. B. Dorais, Eug. Beauchesne, Josaphat Lachance, Luc Dancause and Osias Mailhot.

During the meeting the Quebec Maple King, Emile Plante of Bowker Lake, was presented with a suitable trophy as a memento of his achievements. Dr. Bois of the University of Laval explained the role of the chemist in assuring high quality maple products, and Roch Deslisle of the Department of Lands and Forests gave an illustrated talk on sugar-bush management.

Ayrshire Breeders Review The Year

IN the first paragraph, bouquets to the executive of the Quebec Ayrshire Society, who managed to get their annual meeting started off at approximately the time it was supposed to begin. Even though there were only some forty people in the room, Brother Leon, the retiring president, called the meeting to order promptly, made a short speech of welcome, got the various committees appointed, and settled down to the business of the day with no loss of time. It didn't take long for the room to fill up after that, and a good crowd of Ayrshire enthusiasts spent a busy and profitable day.

Secretary Boulais, reporting on the activities of the past year, pointed to a small drop in membership, which now stands at 982. Evidently a membership drive is called for, and he urged that every member make a point of calling on his Ayrshire-owning neighbours who are not members and encourage them to come into the Society. The financial statement showed that the year had finished with a surplus of about \$250, but this would have been a deficit had it not been for the \$700 surplus carried forward from 1952. Lack of funds prevents the officers of the Society from carrying on any but routine duties,

and larger revenues, both in the local clubs and at headquarters, are badly needed. This happy result, of course, would follow from increased membership. Also,



The winning team in the judging contest held during Quebec Fair, Jean Paul Legace and Gerard Bonin, receive their trophy from Pierre Labrecque, head of the Livestock Division.

more money would be available if all members would pay their fees promptly. Club secretaries are being asked to follow this up, with the help of lists of non-paid memberships sent out from headquarters.

There was more activity in transfers (3255), registrations (5354) and exports (470) than in 1952. District activities take up a good deal of the time of the secretary-fieldman, who attended each of the 13 Red and White days that were held, at which 1126 head were exhibited by 126 breeders. The Ayer's Cliff club had 20 exhibitors out at their field day and showed 85 head; the Victoria-ville club, with 12 exhibitors, brought out 156 head, the most of any, although Montmagny was close behind with 137.

Recognizing Achievement



Rene Boulay of the St. Hyacinthe Club, owner of the highest producing Ayrshire in Quebec during 1953, receives his trophy from president Brother Leon. He won the award on the production of St. Andre Biblanc, 15,816 pounds milk, 838 pounds fat.

Something unique in provincial Ayrshire work is the presenting of production certificates for the highest-producing cows in each of the 23 local clubs. This policy was started last year by the Quebec Society, which is the only provincial club in Canada which takes this means of recognizing the achievements of the local breeders. The award for the highest production went to J. Boulay of St. Thomas d'Aquin, who owns a 68-head herd with 30 milking. The certificates are presented on corrected records on the basis of 4% fat, equivalent of 2-a-day milking, 305 days. The Hotel Dieu of Chicoutimi won a second-place certificate and J. P. Bradley of Lachute came third on the production of Glengarry Wonderful with 16,501 pounds milk, 720 pounds fat.

Stan Chagnon of the Prices Support Board, speaking at the luncheon meeting, pointed out that only 20% of the pure bred dairy cattle breeders in Canada do R.O.P. testing, even though this service is cheap; in fact, it costs less here in Canada than anywhere else in the world. In no other way can a farmer properly evaluate the performance of his animals, and he hoped to see a great increase

in this testing in the near future. He also stressed the value of the 4-H club work; club members are doing a real job, but there is room for a lot more clubs in this province.

Lady Luck came to the meeting with G. Filion of the Labelle Club. For some time past raffle tickets have been on sale for four prizes: a heifer calf or \$100 for first prize, \$50 for second prize, and \$25 for third and fourth prizes. The draw was made at the meeting, and the first ticket drawn from the thousands of stubs in the box bore the name of G. Filion. Second and third draws were made, but the fourth ticket again bore the name of G. Filion. Most of us despair of ever winning a raffle; and then along comes Mr. Filion to win two prizes on the one draw. So now he has a new Ayrshire calf, and twenty-five dollars to buy feed for it.

Leo Leblanc of St. Jacques in Montcalm County was elected president, and vice-president is Amedee Gagnon. Francois Boulais continues as secretary-fieldman and Roland Pigeon is Honourary President. Directors are Napoleon Plante, Adrien Cote (technical advisor), A. Brassard, A. Belzile, Brother Leon, J. P. Lizotte, Ph. Granger, V. Racine, N. Kelly and J. R. St. Arnaud.

Joliette County Claims Barley Championship

The Barley Contest sponsored for the past eight years by the Barley Improvement Committee and the Federal and Provincial Departments of Agriculture is paying off in larger yields and better quality crops. In 1946 when the first contest was held, grading of the samples submitted by the competitors showed that only 26.4% made No. 1 quality, and 46.3% were rejected as unsatisfactory. Quality has increased year by year, and the 1953 reports showed 69.6% No. 1 and only 6.2% of rejects.



Ernest Adam (left) who won Quebec's barley growing championship for 1953, receives a certificate from Armand Desrochers, the newly-appointed president of the Quebec Brewers' Association.

Yield per acre has also improved vastly, from a low of 29 bushels in 1946 to a high of 51.8 bushels in 1950 and 1951. Due largely to weather conditions during the summer, the 1953 yield was down to 44.8 bushels.

Farmers in fifty-four counties in the Province of Quebec are eligible to enter the contest, and for purposes of administration and elimination the territory is divided into eight regions, in each of which seven prizes are given, varying in value from \$60 to \$5. Samples submitted by the regional winners are judged to determine the provincial championship.

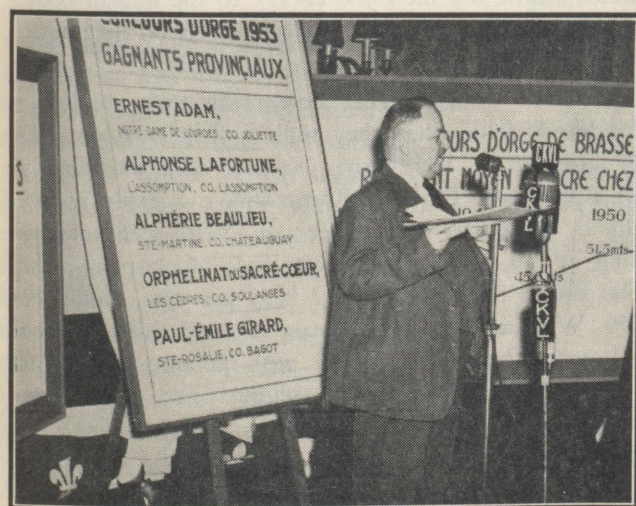
Each contestant must plant at least five acres of either Montcalm or O.A.C. 21. The growing crops are inspected in the field during the summer, and any not up to standard are rejected then and there. Of the 219 contestants who started out, 26 failed to pass this preliminary test. There were 48 who, for one reason or another, did not submit samples at harvest time, so the final judging was done on 145 samples.

These samples are prepared during November, and each must consist of at least 40 bushels. Two 2-pound representative samples of each lot are taken for analysis by the judges, and the judging is done during December to determine the regional winners.

Once the regional winners are announced, the samples submitted by the two top men in each region are judged for the provincial championship.

If these contestants can harvest an average of between 45 and 50 bushels of barley to the acre, Mr. Auger sees no reason why everyone can't do the same thing. Quebec farmers grow about 56,500 acres of barley each summer; if all the yields were like those of these contestants, we would harvest about 904,000 more bushels of barley than we do, on the same amount of land.

Two former prize winners appear in the list of the first five contestants. Paul Emile Girard who placed fifth this year won in 1952, and Alpherie Beaulieu is another first-prize winner of a former contest.



Andre Auger, who directs the Quebec branch of the Barley Contest, announces the winners. Names of the five leading contestants can be read on the poster behind him.

Fruit In The Home Garden

GROWING fruit in most home gardens can be both an interesting hobby and a profitable undertaking. But this cannot be achieved unless the right species or types of fruit are selected. Furthermore, only certain varieties are suitable for a particular area and only recommended varieties should be planted.

Because most home gardens are of limited size there is often not much choice in the selection of the area for fruit growing. Preferably the soil should be arable and well drained. The most important factor is good drainage since most fruits will not thrive in poorly drained soils.

Plants from southern climates are either extremely difficult or impossible to bring into production in Eastern Canada. Not all apple, strawberry and raspberry varieties are adapted to a particular area. The selection of varieties for your area need not be guesswork since variety recommendations can be obtained from Agricultural Representatives, Experimental Stations or Colleges of Agriculture.

Some consideration should be given to the number of trees or plants required. If the fruit is to be grown for family use only, it should be remembered that a fifteen-year-old McIntosh apple tree in good condition will yield more than ten bushels of apples; a thirty-foot row of raspberries will yield fifteen quarts; a thirty-foot row of strawberries should yield twenty quarts.

Frequently a planting of one variety of a particular fruit is unproductive because a complementary variety has not provided for cross-pollination. Cross-pollination is the transfer of pollen from the anthers of the flowers of one variety to the pistils of the flowers of another. This work is done by bees and other insects. If the home gardener plants complementary varieties for pollination he will be assured of good pollination, which is necessary for good yields. Apple and certain plum varieties require cross-pollination, while raspberry varieties and strawberry varieties, if perfect-flowered (that is if they have flowers with anthers and pistils) do not require cross-pollination.

Fruits severely affected by diseases or insects are of little value. One troublesome pest of the apple is the apple scab fungus while another, the apple maggot, is frequently the downfall of apple culture in home gardens. Mice and rabbits can cause severe damage to fruit tree trunks by eating the bark. All fruits are troubled by some pests and an annual control program must be carried out.

Some varieties of apples and pears can be stored for several weeks in a home basement storage. The condition of the fruit at the time of placing in storage and the temperature and humidity within the room are important. Other home garden fruits should be eaten or processed shortly after harvest.

Shorthorn Breeders Hold Successful Meeting at Sherbrooke



At the annual meeting of the Quebec Shorthorn Club: left to right, W. G. MacDougall, Senator Adelard Godbout, Col. B. D. Lyon, E. H. (Ab.) Stoltz, D. J. MacMillan, N. G. Bennett and Jean Godbout.

The Annual Meeting of the Quebec Shorthorn Club was held in Sherbrooke recently, with probably the largest attendance of breeders ever seen out on this occasion. The President, N. G. Bennett, Bury, welcomed all present and pointed out that the past year had been an important one for the Quebec Shorthorn Club. A successful picnic had been held on the farm of Mrs. W. C. Pitfield, Saraguay, last summer with a good attendance. Several breeders had added top cattle to their herds.

The Secretary, D. J. MacMillan, Cookshire, informed the meeting that there were 131 members in the Club during the past year, a slight decrease from the previous year, but the number of registrations and transfers were the same as in 1952. Among other items he mentioned the fact that Shorthorns were shown in Three Rivers for the first time, and that Dual-Purpose Shorthorns were shown at the Quebec Exhibition in 1953.

Ab Stoltz, Fieldman for the Canadian Shorthorn Association, urged the purebred breeders not to forget to produce cattle which would suit the commercial man. He felt that more work should be done by using testing stations for bulls, and if possible some herd classification system should be set-up. The information thus obtained in turn would be printed on the pedigree.

Mr. Don Robertson, from the Federal Livestock Department of Agriculture, spoke briefly on Beef Club work in the Province. He mentioned that the steers fed under the Special Steer Feeding project with the Juniors at the Sherbrooke Winter Fair, averaged a daily gain of 1.66 pounds, at a cost of .29 cents per pound.

It was announced that a Field Day would be held on the farm of Senator Adélard Godbout, Frelighsburg, on August 2nd, 1954.

The Officers for 1954 are as follows: President, N. G. Bennett, Bury, 1st Vice-President, Jean Gdoubout, Frelighsburg, 2nd Vice-President, C. N. Abbott, Varennes, Secretary Treasurer, D. J. MacMillan, Cookshire. These, along with Ross Edwards, Hillhurst; J. P. Macintosh, East Bolton; and George MacGibbon, Lachute; make up the Executive Committee.

Judges recommended for the Shorthorn Classes at the Sherbrooke Winter Fair are as follows: John Carter, Aulac, N.B., 2nd choice, Reford Gardhouse, Weston, Ont.

Buy Certified Seed Only

The potato is man's greatest food. By adding a little milk, cream, or butter to a potato, a food combination is provided that contains every found element which contributes health and increased energy to the human body. Potatoes have a neutralizing beneficial effect on the human system, and they also provide regulating bulk.

Very few farmers realize how much they are losing by reduced yields when they replant their own potatoes year after year. Seed-borne diseases, such as Mosaac, Leaf Roll, Black Leg and Rhizictonia can easily reduce yields by 50 to 100 bushels per acre. With seed potatoes selling at .50 cents a bag over table stock prices, the extra cost of seed, planting 12 bags per acre, would be \$7.50. With a 50 bushel increase in yield this increased yield would be worth \$60.00 with potatoes selling at \$1.20 per bushel, the average selling price of potatoes over the last 13 years.

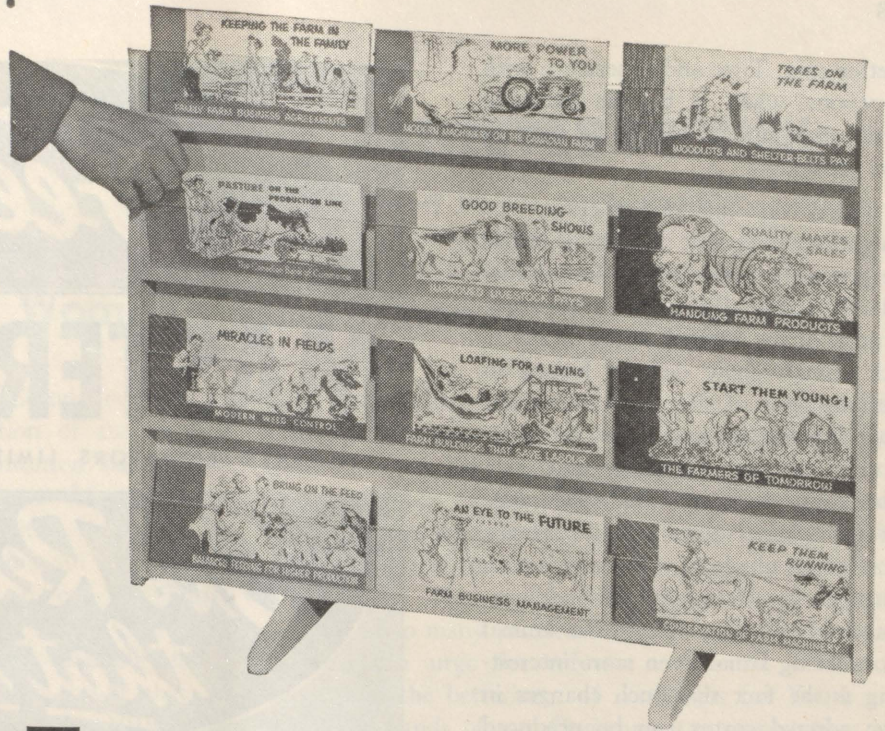
Good quality seed is always the cheapest. The cost of seed is a very small part of the total cost of growing a crop of potatoes. Insure a good crop by using Certified Seed.

Ketosis of Dairy Cattle

PART II (Conclusion)

by D. G. Dale, D.V.M.

Last month in this column we discussed one of the theories of the cause of ketosis and also mentioned a new method of treatment based on this theory. In actual practice sodium propionate has not been used as extensively in treatment as it might have been had it been discovered ten years ago. One of the reasons for this was the discovery by another group of researchers that "cortisone" — the drug that was so widely publicized in the treatment of human rheumatoid arthritis — was a specific cure in a high percentage of bovine ketosis cases. Cortisone is one of about 30 hormones that chemists have managed to extract from the adrenal glands of animals and man. The adrenal glands have been known to be essential to the life of the animal for a long time. One of the effects that follows removal of the adrenal glands in experimental animals is a drop in the level of blood sugar. These low blood sugar levels can be returned to normal in such animals by the injection of crude extracts of the adrenal glands. Based on such facts and the knowledge that one of the characteristics of bovine ketosis is a low blood sugar level, Dr. J. C. Shaw of the Maryland Agricultural Experiment Station, tried crude extracts of the adrenal cortex as a treatment in ketosis of cattle. The extracts that were available at that time (1947) were a mixture of about 30 different hormone-like substances that are present in the adrenal cortex. It was known at the time, that the blood sugar raising property of these extracts was primarily due to only one or two of these compounds, the chief one being cortisone. Even though the extracts were crude, Shaw was able to report that this was a very effective method of treatment and he prophesied that when pure cortisone became commercially available, it would be an even



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better cure. Time and experience with cortisone when it became available have since proven him to be right in his prediction.

Based on this information, we might suppose that ketosis of cattle is primarily a disease of the adrenal glands, especially since microscopic studies of the adrenal cortex of affected animals show definite lesions in certain areas of the gland. However, this supposition would not be quite correct because we know that such changes in the microscopic appearance of the adrenal gland are not specific for ketosis alone, in other words such changes are frequently found regardless of what disease the animal is suffering from. Even more interesting is the fact that such changes in the adrenal cortex can be produced experimentally by exposing animals to almost any form of harmful stimulus, such as excessive cold, heat, exercise, etc. Experiments of this kind have been carried on extensively for a number of years by Dr. Selye of the University of Montreal. For all these different types of unrelated harmful stimuli that cause changes in the adrenal cortex, he has proposed the general term "stress". According to his widely accepted theories, the animal body attempts to "adapt" itself to any form of stress to which it might be exposed. The adrenal glands, and perhaps even more important the anterior pituitary gland, which governs the activity of the adrenal cortex, play a vital role in the adaptation. When either of these glands fails to function properly, a group of conditions appear that Selye has called the "Diseases of Adaptation".

Using this theory as a starting point ketosis may thus be classed as one of the diseases of adaptation. The "stress" that initiates the disease may well be the strain of high milk production that so closely follows the strain of pregnancy in the dairy cow. It is certain that the failure of the adrenal glands in cases of ketosis is not of a permanent nature. This is demonstrated by the fact that usually

one, or at the most two, injections of cortisone will bring about a complete cure.

The hormone production of the adrenal cortex is controlled by the secretion of another hormone from the anterior pituitary gland called ACTH. The injection of ACTH into an experimental animal causes the adrenal cortex of such an animal to pour out more cortical hormones including cortisone. Based on this knowledge ACTH has been tried on cases of ketosis and has worked equally as well as cortisone. Thus we can deduce that there is nothing the matter with the adrenal glands themselves in this disease, it is just that they are not being "prodded into activity" as it were. The true cause of ketosis may be a temporary failure of the anterior pituitary gland to produce enough ACTH. If this is so we must next ask ourself what factors cause this temporary pituitary insufficiency. In other words, what is the nature of the "stress" that causes ketosis in the dairy cow? When we know the answer to this question, we may be able to remove these factors from the animal's environment and thus prevent ketosis from developing.

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To conclude that high milk production is the main stress factor does not explain why all high producers don't get ketosis. Indeed in many herds ketosis is almost unknown in spite of the fact that such herds often contain many high producing cows. On the other hand, there are many herds in certain areas that are continuously plagued by the problem. It would seem that environmental factors have a part to play in predisposing dairy cattle to ketosis.

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Women's Inheritance

by Anne Leggett

It was interesting to note, in the Coronation issue of "Home and Country", the publication of the English Women's Institutes, that this organization has existed through three reigns. The late Queen Mary became interested in the work when she visited an exhibit in London in 1917. This was a "something out of nothing" exhibit, what, in Canada, we would call a "Thrift Exhibit".

Her Majesty announced her intention of doing all she could to foster the movement, with the result that an Institute was formed in Sandringham in 1919 with Queen Mary as the first president. The present Queen Mother is president today, and Queen Elizabeth has been a member since 1943. Her sister, Princess Margaret, joined three years later. The Princess Royal, Duchess of Kent, and Duchess of Gloucester are also Institute members in their respective localities and are keenly interested in all phases of the work.

Our Queen, who this year dedicated her life to the service of her people, with an attitude of humility apparent to all who saw and heard her, realizes the respon-

sibility she holds — a woman resolving to do her best, a splendid example to all of us, especially those who are leaders in work for their community.

As a visitor to the ACWW Conference this past summer, I was impressed by the enthusiasm of the women from all parts of the world for their work for the benefit of mankind. They realize that in our hands lie the solution of so many problems that beset the world today. Women can urge for reforms in Health, Education, Peace, and the betterment of conditions for Youth and Age. The hands of our Government representatives are tied with so many political issues concerned — they can only promise. It is for us women to push forward our efforts, make ourselves heard and known, insist on more common sense being used in legislation. So many of our laws show a conspicuous absence of this quality.

This year Mental Health for our communities is one of our projects. Already constructive ideas are being pooled and we would welcome others from any of our members in the province that would aid in the work of helping and providing for the mentally ill.



The next triennial conference of the Associated Country Women of the World will be held in Ceylon. This has just been announced by the Central Office in London and these pictures will be of particular interest in view of this event.

In No. 1, second from the left, is Mrs. F. B. de Mel, president of the Ceylon Mahila Samiti (Women's Institute) as she is being greeted upon arrival at an Institute meeting of a branch in the interior. The second picture shows members of this branch in the grounds where the meeting was held.

Members of the Q.W.I. who attended the Toronto Conference met Mrs. de Mel there and were much impressed by her ability and warm friendliness. Mrs. Ossington, the Q.W.I. Citizenship convenor, is urging branches to make contact with those in Ceylon and will be glad to supply information. Her address will be found in the Annual Report.

Progress is slow in our work for "Homes for the Aged", but persistence in our objective will, in time, bring results. We note other countries, such as South Africa, are making progress. They have flats, semi-detached cottages, and homes that will house 32 people where the District Nurse calls daily in the interest of their health. Some are financed voluntarily, others have government aid, but all are backed by the Women's Institute who recognize the urgent need.

In Compton County, Sawyerville branch, the W.I. members have demonstrated by four years of constant endeavour, the value of dental care for children. They feel that, due to the benefits received by these children and the improvement in dental care, that Mobile Dental units would be of valuable assistance in the rural districts. Results in their county, through co-operation with other organizations, have been most beneficial. In Pontiac county, splendid work has also been done in dental care.

In every district where there is a Health Unit, contact with the Health Officer should be made and any constructive ideas submitted. I hope every member who lives near a Health Unit takes advantage of the TB Clinic, also the Well Baby Clinic. Your interest is encouraging to those who operate these services and could very soon lead to others, such as Mobile Dental Clinics and Cancer Clinics for the rural communities.

As we read of the shortage of food in many parts of the world, we realize the wisdom of this sentence from a speech by Mrs. Sayre, "The economy of a country

rests on the four legs of a cook stove". Women hold that responsibility; they are the cooks and buyers who control this economy. Our inheritance is vast. In our leadership, whether it be of branch, county or province, we must be mindful of those attributes necessary to good living and good results.

Sense	— in our dealing with Institute work
Simplicity	— in presenting the business of our organization
Sincerity	— in our devotion to the work for our W.I.
Sympathy	— for the ideas and problems of our fellow workers
Serenity	— through all times of stress
Security	— in our leadership so all will have faith in our judgment.

Margaret Bondfield stated women undertake jobs and they always see them through. In some cases women have no other alternative! Women all over the world are banding together for Home and Country, with the knowledge that their inheritance is to guide the young and help mold their future, giving leadership by their own way of living.

May I end with this Chinese proverb — "If you have righteousness in the soul you will have beauty in the character. If you have beauty in the character you will have harmony in the home. If you have harmony in the home you will have order in the nation. If you have order in the nation you will have peace in the world."

An Open Letter

New Years Day — Dear Mrs. Taylor,

For the past five weeks cards have been arriving in every mail from many branches and members of both the senior and junior Women's Institutes. At first I was able to thank each person individually but as Christmas approached they came in such a rush that it would take almost the rest of my year here to answer them.

I have appreciated receiving them so much though, and hearing of the activities of the various branches, and wonder if you would be good enough to pass on my thanks to them all. Please send them my greetings and wish every one a very happy and successful New Year.

Time out here is going so fast. It's almost impossible to realize that we are in to 1954 and that I have been away nearly four months already — a particularly happy four months — and especially this holiday season.

The very best to you all.

Sincerely,

IDA R. BRUNEAU.

(This was read at the semi-annual meeting just held but am taking this way of getting Miss Bruneau's message to you all, as she requested)

What Others Are Doing

Within the month two meetings have been attended by your Q.W.I. representative. At the first of these, presidents of local branches of the Canadian Association of Consumers, liaison officers of participating organizations, (which is where the Q.W.I. comes in) and the provincial directors, met for an informal discussion of current issues. These meetings take place at stated intervals, the last one being held in October. The provincial president, Mrs. W. V. George, presided and among the items tossed around the table was the request being made by the CAC that butter, imported cheese and cottage cheese be pasteurized, and that all products that are should be so labelled. Is there any way we can know the water (juice) content of canned goods? Is there any way of making sure dealers keep frozen foods frozen, not let them thaw out and then re-freeze before selling? (orange juice that separates one example) were some of the questions asked and on which the Consumer Research Committee was asked to make investigation. An approximate membership of 3000 is now reported, an increase of 200 since the last meeting.

The other event was the regular monthly meeting of the Montreal Council of Women. This was of especial

interest as a panel discussion was held on topics leading to information to be used in the briefs being prepared by the Q.W.I., the CAC, and the Council itself. Dr. D. L. MacFarlane, Macdonald College introduced the subject, giving some telling facts and figures. Mrs. H. Ellard, the Q.W.I. second vice-president, and Mrs. George, were the other speakers. Mrs. Donald Storey, Chairman of the Economics Committee for the Council, acted as chairman for the panel, and the many questions asked by the audience indicated the keen interest taken by housewives in this eternal problem of the price spread between producer and consumer.

The Month With The W.I.

A large number of the branches reporting every month, hold their meeting too late to get their news to the Publicity Convenor, Mrs. Evans, in time for the current issue of the Journal. (After the 15th of each month) That means those "held-over" reports are the ones that have had one sentence deleted to avoid repetition. Have you guessed what it is? Yes — "Baskets were sent to the sick, the shut-ins, and needy families". In fact, one hardly needs to mention this at all — every member knows this is always a vital part of W.I. programs, any time of the year but particularly so at the Christmas season.

Argenteuil: *Arundel* gave a scholarship of \$50 which was won by Charles Johnson, Grade X. The branch president, Mrs. Percy Staniforth, showed pictures of her vacation in Florida. *Frontier* had a discussion on news items of 1953 and pertinent articles were read by the convenors. A Red Cross quilt is being made, \$15 sent to the Children Memorial Hospital, and cotton to the Cancer Clinic. *Jerusalem-Bethany* discussed home remedies. The sum of \$10 was sent to the Q.W.I. Service Fund and \$5.75 to the County Educational Fund. *Lachute* had as guest speaker Mrs. G. Leggett, provincial convenor of Welfare & Health, who spoke on "The First Wealth in Health". A food sale brought \$98. *Upper Lachute* and *East End* members and their husbands enjoyed the showing of a film of local scenes in their autumn colouring.

Bonaventure: *Black Cape* had singing at their meeting and a discussion was held on home made gifts. Each member gave a contribution towards barley for Korea. A new member was welcomed. *Grand Cascapedia's* meeting took the form of a party with 21 members and 6 guests present. Favorite recipes were exchanged, a "Donkey" contest held and a "Who am I" quiz. The W.I. assisted with the children's concert. *Marcil* packed five parcels, four for local children in Government homes. *Port Daniel* has offered prizes in French to Grades V to VIII, in the Consolidated School, in addition to prizes in the Roman Catholic Schools for Geometry and Arithmetic. The book, "Canada: The Golden Hinge", has been

sent to the W.I. link at Sway, England, and contact is being made with members of the Scottish W.I. whose tartan bow had come to the branch. Mrs. Adams' message in the "Federated News" was read, also excerpts from Miss Laura Lane's report in the "Countrywomen's League" on the ACWW Conference. More than 50 children in the school have applied for seeds for the coming year's school fair. *Port Daniel-Shigawake JWI* is learning the first steps of crocheting. A new member, Gloria Duguay, was enrolled.

Brome: *Abercorn* realized \$21 from a card party. A box of clothing was sent to the Children's Home at Bondville. *Sutton* packed boxes and sent candy to a Boy's Home.

Chat-Huntingdon: *Aubrey-Riverfield* donated toys to the Salvation Army and three quilts were made for a Social Service agency. *Dundee* had a travelogue and coloured slides by Mrs. Francis Shields of Bombay, N.Y. on her recent trip to England and Europe. Several demonstrations on centrepieces were given. Miss Campbell's successful sewing class has been completed and a card party has been held. *Franklin Centre* donated money and toys for the Tiny Tim Fund. A card party here brought \$38.66 for the benefit of the Consolidated School. *Hemmingford* had Mrs. W. B. Bernhardt, county president, as guest speaker, who told of the JWI and their work. Table favours were demonstrated. *Howick* brought gifts for a Welfare Home in Montreal and voted \$10 to the Q.W.I. Service Fund. Mrs. R. Tolhurst gave a demonstration on fashions, past and present, and Mrs. J. D. Lang read an article on "Queen Salotte of the Tongas Islands". A talk on "Temperance" was also given by the Rev. W. A. Edwards. *Huntingdon* had a quiz, "Practical Ideas". Sunshine boxes were sent to the Patterson Nursing Home in Huntingdon and linen and cottons were sent to the Cancer Society. Rev. R. D. McLean gave a talk on "Robert Burns". *Orms town* held a card party, netting \$19. This branch also had a sewing class, given by Miss Campbell.



Mrs. Philip Roy,
president,
Scotstown W.I.



A group in Pontiac County. "Just couldn't get them all together at one time," says Miss Pritchard, whose camera took the picture. Thanks to a bystander, Miss Pritchard could be in the picture this time, as you see, second from left. The county president, Mrs. Shennett, is at the extreme right.

Compton: Canterbury reports only the usual neighbourly cheer of the season, which included over 40 bags of candy to the children. East Angus held a social evening when singing was enjoyed. Fortunes were told by Mrs. Shetluch and a coffee spoon was presented to the member who gave valued assistance with the arrangements. Sawyerville sent a box to an English W.I. Scotstown sent gifts to the Wales Home and a box to Calstock W.I. in England. A social evening was held.

Gaspé: L'Anse aux Cousins heard an article "Lanterns in the Night", read by Mrs. Guy Patterson, Publicity convenor. A donation of \$5 was given the Q.W.I. Service Fund. Sandy Beach had a social evening when a birthday cake and gift were presented to one of the oldest members. Parcels were made up for children in the Sanatorium. A membership has been taken out in the UN Association of Canada. Wakeham also held a party. Parcels were sent to patients in a local Sanatorium and to a young man in the Louis Pasteur Hospital. Three new members were welcomed.

Gatineau: Breckenridge completed a survey for information re Cerebral Palsy in that district. A sale netted \$5 and \$10 was voted to the Q.W.I. Service Fund. Eardley had two readings and a contest and quiz with prizes given. Donations are reported of \$31 to the Can. Institute for the Blind and \$10 to Save the Children. Kazabazua donated \$10 to the Q.W.I. Service Fund. A report was given on the prize money from Maniwaki Fair. Rupert's meeting stressed the holiday theme. A donation of \$10 was given to Save the Children. A reading, and contest with prizes, were featured. Wakefield voted \$10 to the Ste. Annes Military Hospital and \$10 to a recently organized Boy Scout Troop. The sum of \$84.90 was realized from poppy sales and more than \$168 was sent to Canadian Institute for the Blind as the result of a canvass. The county convenor read a

paper on "Publicity". Wright discussed the Consumer's Guide, and a caution re fire hazards. The sale of a blanket brought \$17.10 for funds and donations included \$12.85, Q.W.I. Service Fund; \$5 Canadian Institute for the Blind and \$6.20 for prizes at Aylmer Fair.

Megantic: Inverness is planning a course in leather and feltwork, and reports a donation of \$5 to the Children's Memorial Hospital. Lemesurier sent 42 scrapbooks and two large scribblers to the same Hospital, three crib quilts to the W.V.S. for Korea, \$10 towards hot lunches at Kinner's Mills school, cotton to the Cancer Society, and a large parcel overseas — an amazing record for our smallest branch.

Missisquoi: Dunham heard a paper on "Adult Education" read by Mrs. Doherty, convenor of Education. Fordyce members held a handicraft competition. Cardboard apples, containing "holiday dates", brought a substantial sum for the treasury. Stanbridge East donated \$10 towards hot lunches at the local school.

Papineau: Lochaber heard a report on the progress of the local Farm Forum, sponsored by this branch, which was given by Mrs. A. Devenny. Mrs. J. Angus stated \$22.20 was realized from the sale of cards and \$6.07 from a Wear-Ever Brush demonstration. A novelty sale was held.

Quebec: Valcartier had a demonstration on wall papering, given by Mrs. Walter Knox. The sum of \$100 was cleared at the annual dance, held at Valcartier Lodge.

Richmond: Cleveland had as guest speaker, Mrs. A. E. Abercrombie of Lennoxville, who gave an account of her ACWW trip to the west coast. Denison's Mills mentions only the usual holiday cheer in its report. Gore had a contest, "Know Your Advertisements". Six cups and saucers were given to a new Canadian. Melbourne Ridge had a chocolate making demonstration by Mrs. A. Smith and Mrs. L. Driver. The sale of school desks



The Lennoxville, W.I. executive. Left to right: Mrs. R. W. S. Nutbrown, vice-president, Mrs. H. L. Wallace, president, Mrs. B. A. Hill, secretary, Mrs. L. Parker, treasurer.

brought \$34.50; card party, \$15.55, and food and rummage sale, \$26.65. A parcel has been sent to a member's son in the forces, 35 knitted squares to Korea and \$10 to the Salvation Army. Two boxes of UNICEF cards were purchased by this branch. *Richmond Hill* had a contest on centrepieces. The hostess donated an apron, each member putting money in the pocket. Later, the member guessing the nearest amount, received the apron, the money going to the treasury. *Richmond Y.W.I.* held a contest on homemade candy, which was later auctioned off. *Shipton* held a supper for members and families. The 1954 program was discussed. *Spooner Pond* had an auction and contest of homemade candy.

Rouville: *Abbotsford* is giving a bursary of \$25 to any student graduating from high school who wishes to further his education.

Shefford: *Granby Hill* held a party in the High School and gave \$5 to the Children's Memorial Hospital. A letter from a W.I. member in Ceylon was read. *Roxton* held a social evening and supper, with readings and a contest for the program. *Warden* had Miss Dorothy Wallace of Kings Hall, Compton, as guest speaker, who gave an address on "Adult Education".

Stanstead: *Beebe* had a review of 1953 given by one of the members. A book was purchased for a convalescent member. *Minton* had a jumbled word contest with prizes for the winner. *North Hatley* heard a talk by Dr. A. Harrison, "Trends in Modern Medicine". A discussion with a view to presenting findings helpful to the Q.W.I. brief was informative. A child, who required special teaching, is being helped and \$5 was sent to "Care" for Korean Relief. *Stanstead North* had films on Saguenay County shown at the local school. Scrap books and cutouts were sent to the children at Sherbrooke Hospital. *Way's Mills* gave a subscription to the National Geographic Magazine for Ayer's Cliff High School. Each member received a silk scarf from members of Cross-in-Hand W.I. Sussex, England, and in return each member sent a box of fruit to this branch. A new collection of books is being ordered from the Travelling Libraries.

Vaudreuil: *Cavagnal* held a contest on the most expertly wrapped gift, the prize being one dollar. Boxes of candy were given to veterans at Ste. Annes Military Hospital. A program was given by Downham Nursery Co., three members winning prizes of rose bushes. *Harwood's* meeting took the form of a social evening, with games and singing. Cigarettes, 130 packages, were sent to Ste. Annes Military Hospital, \$10 for children of Greece and a similar amount for Korean children.

Tips For The Housewife

Members of the Dundee Women's Institutes bring "Household Hints" to every meeting. Recently the secretary sent on a few of these, thinking others might like to hear them too.

An old terry towel, cut up and dipped into a basin of water to which a handful of whiting has been added, and then dried, makes a good drier for silver, it will never need polishing.

To sharpen scissors pretend to cut the neck off a glass bottle.

To keep a kettle from being coated with lime, put in a clean cloth, change it often, and the lime will adhere to the cloth.

When a pattern is to be taken from some old embroidery, take a silver spoon, rub it on your hair, then on the cloth which has been placed over the embroidery, and the pattern will be clearly seen.

To prevent macaroni, spaghetti, rice or vegetables from boiling over, rub a little piece of butter around the inside of the pan.

To remove dirty adhesive tape marks, use nail polish remover. This is also good for removing paint from hands and face.

If sugar becomes hardened place a slice of bread in the receptacle in which it is kept. This will soften the sugar very quickly.

Take old nylon hose and cut out the seams, heel and toe. Then stretch the stocking so the nylon will run and become a fluffy mass. Fill your shoulder pads with this and take several long stitches in cover to keep the nylon in place. These are light and comfortable to wear, easy to wash and never bulky. (Wonderful for stuffed toys too).

Cream will stay whipped longer if honey is used for sweetening.

If blouse collars are wrinkled and you're in a hurry, try "pressing" them by running them gently over a clean, lighted electric light bulb.

Use turpentine instead of gasoline or benzine when removing grease from carpets. It does not leave a ring as benzine is liable to do.

Strain leftover tea into bottles and add 1 teaspoon of glycerine to each pint. You will have an excellent window cleaning fluid which will also keep flies off the glass.

Old iron plow seats make excellent seats for children's swings. Being moulded to fit the body and give some support at the back, the seat is much safer than a flat piece of wood.

When making jams or jellies, place a milk bottle cap in the paraffin cover of each jar before the wax hardens. Covers are removed and replaced easily.

To prevent caps of nail polish bottles from sticking, rub the screw threads with cold cream before bottle is used.



THE COLLEGE PAGE

The Macdonald Clam

Notes and News of Staff Members and Former Students

Education For The Teacher

The Director of the School for Teachers describes the New Four-Year Course

The education of the teacher is both simple and complex. It must be based on broad and through knowledge which will serve as an adequate background and this can be obtained, as in other professions, through the study of liberal arts and science. But knowledge is not enough. The teacher must also possess skill in presentation and he must develop a sympathy for the child and a clear understanding of the learning process. He must, above all, develop a vigorous personality, a balanced sense of values, resourcefulness and integrity. The teacher must learn a great many things. Some he may learn rapidly; others very slowly indeed. He may pursue some of his studies in company with students who are preparing for Law or Medicine; but he must also have specialized training. He must observe experienced teachers at work in classrooms; he must himself practise his craft under close and wise supervision; he must have the opportunity to discuss and evaluate educational programs and procedures with teachers actively engaged in classroom work. Because these experiences are so varied, it is not always easy to arrange them in an orderly program, especially since, by the very nature of teaching, they can never be completed. As one famous teacher has said: "Teaching is an art — an art so great and so difficult to master that a man or woman can spend a long life at it, without realizing much more than his limitations and mistakes, and his distance from the ideal."

McGill University has provided teacher education for almost a century. The McGill Normal School was founded in 1857 by an agreement between the Provincial Government and the University and it continued to operate in Montreal for fifty years. In 1907 the School was transferred to Ste. Anne de Bellevue, where, as the School for Teachers, it became an integral part of the new Macdonald College. For nearly fifty years courses have been provided leading to the various diplomas issued by the Central Board of Examiners, Quebec, and during this time a splendid tradition has been established for sound practical training in classroom methods and practice. Last September a new course was introduced. In addition to the diploma courses, all of which will be continued, a

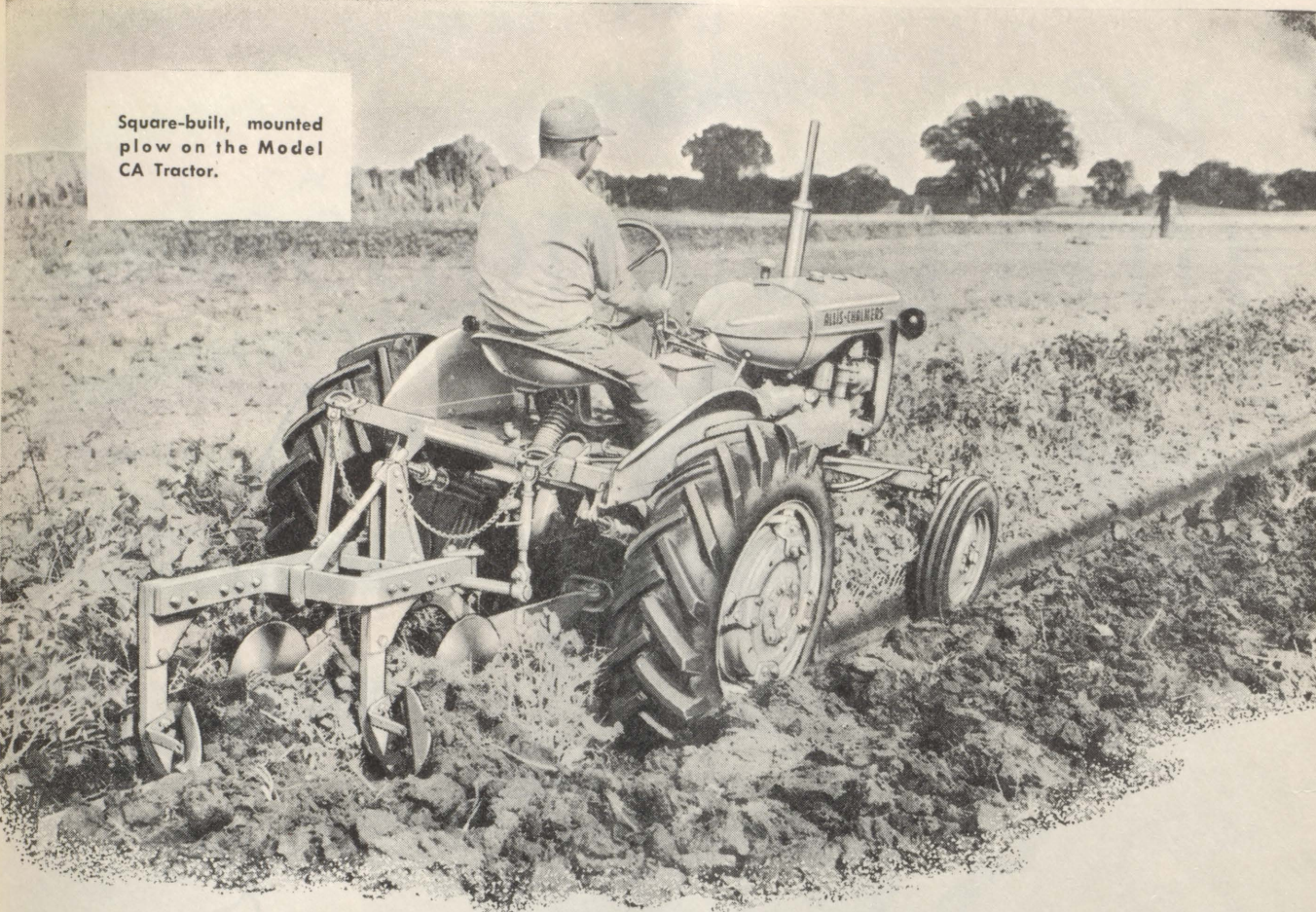
four-year course was inaugurated leading to the degree of Bachelor of Education. This will provide a thorough professional and academic training for students wishing to prepare for teaching.

The course provides a sound and extensive background through the inclusion of approximately the same number of standard courses as are required for the B.A. or the B.Sc. degrees; thus the teacher will be well equipped in the basic subjects of the school curriculum. Four foundation courses are offered in the history, psychology and philosophy of education and these are spread through the four years, serving as a catalyst in dissolving the barriers between subject matter and classroom practice.

In the division of instruction, courses are planned so as to include all subjects of the curriculum and all levels of the school. The first year courses are *subject* centered to meet immediate needs of our classrooms and prepare the student for his first experiences in teaching. The second year provides a change of emphasis to a *child*-centered approach, while in the third year a course in testing and measurement is closely related to diagnosis and remedial methods in practice teaching. This close co-ordination between method and practice is continued through the fourth year, when special studies in curriculum organization are carried into practice during two periods of internship in which the student will be in complete charge of a class for one month.

The programme is arranged to provide a number of adjustments which will meet the special needs of students. Graduates of the present two-year course will have completed the requirements of the first two years of the B.Ed. course, and may proceed immediately, or after an interval of teaching, to the work of the final years. Graduates of the elementary course will receive credit for the professional courses they have completed and, by continuing with the academic courses, may proceed to degree requirements. It is the intention that the graduate will have well-balanced general training together with sufficient academic credit to allow him to register for the M.A. degree in the department in which he may wish to specialize.

Square-built, mounted
plow on the Model
CA Tractor.



MOUNTED IMPLEMENTS HAVE COME OF AGE

When tractors replaced work animals on farms it seemed natural that implements should be trailed behind the source of power in the traditional manner. Until recently, pull-type plows were accepted without question. Today, the trend is toward *mounted* implements!

With the development of hydraulic systems, it became obvious that there were many advantages in mounting plows and similar implements directly on the tractor, eliminating extra wheels and frames . . . thereby lowering the cost of the implement. In doing so, however, it was apparent that new engineering problems were involved — if the full potential of tractors and mounted tools was to be realized.

Today, Allis-Chalmers is the pace-setter in this field. Here are some of the features that make the WD-45 and CA Tractors with matching equipment recognized as outstanding. With these tractors, engine power spaces rear wheels in or out to fit the job. Hydraulic TRACTION BOOSTER makes use of the implement's weight to increase traction as needed. Implements are *free-swing* — pulled from a single master hitchpoint located ahead of the tractor rear axle. Automatic SNAP-COUPLER makes changing implements a matter of seconds.

Yes mounted implements have come of age, for a significant advancement in the efficiency of power farming.



Model CA Tractor lifts hydraulically to
cross grassed waterway.

SNAP-COUPLER is an Allis-Chalmers trademark.

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THE MACDONALD LASSIE